Examples for financial mathematics

20^{th} February, 2006

1. Given the demand function for a good as $p = 1800 - 3q$. Find the coefficient of point elasticity of demand when p is 300, 900 and 1200. Describe in words each of the results. Find the percentage change if the price of good increases by 10 per cent.

Solution. The coefficient of point elasticity of demand is $\varepsilon_d = -\frac{1}{b}\frac{p_0}{q_0}$, and also $\varepsilon_d = \frac{\Delta q_d}{\Delta p}$, where Δq_d is percentage change in quantity demanded and Δp percentage change in price.

	p_0	300	900	1200
q_0	$\frac{(1800-p_0)}{3}$	500	300	200
ε_d	$-\frac{1}{3}\frac{p_0}{q_0}$	$-\frac{1}{5}$	-1	-2
$\lvert\varepsilon_d\rvert$	$\frac{1}{3}\frac{p_0}{q_0}$	< 1	1	> 1
demand		elastic	unit elastic	inelastic
Δq_d	$\varepsilon_d \Delta p$	-2%	-10%	-20%

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Bibliography

Teresa Bradley and Paul Patton. *Essential mathematics for economics and business.* 2nd ed. 2002(1998)